B. JAHN.

DISPENSING DEVICE.

APPLICATION FILED JAN. 13, 1915. RENEWED MAR. 16, 1918.

1,272,668. Patented July 16, 1918.

Fig. 1.

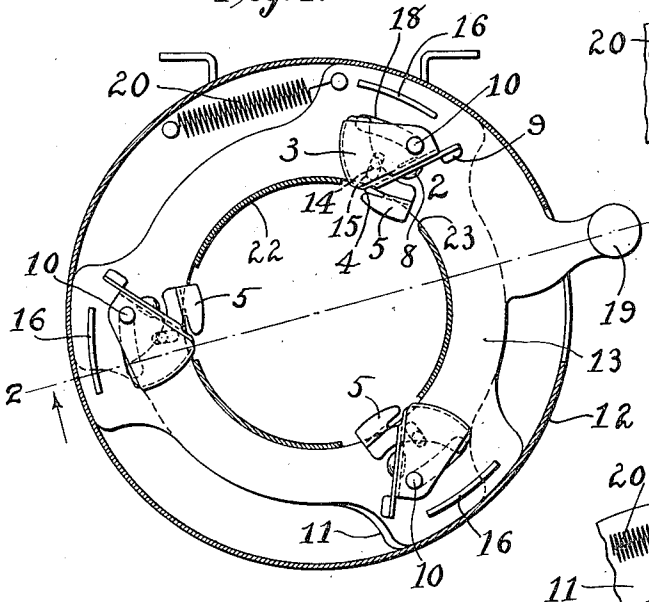


Fig. 3.

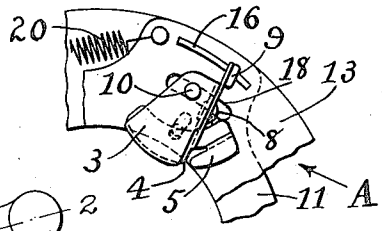


Fig. 4.

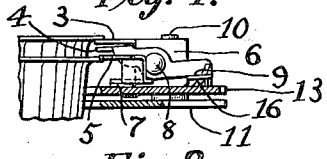


Fig. 8.

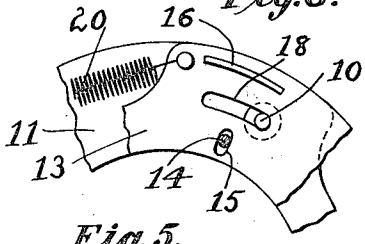


Fig. 2.

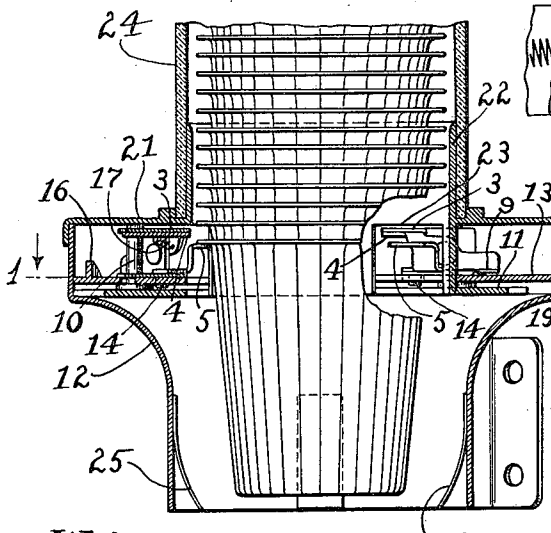


Fig. 5.

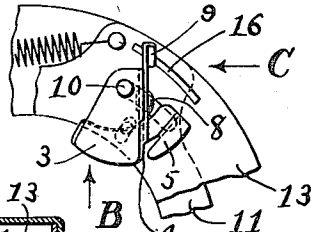


Fig. 6.

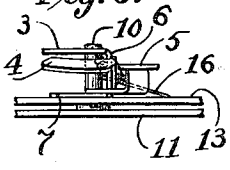
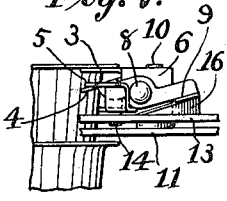


Fig. 7.



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UNITED STATES PATENT OFFICE.

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DISPENSING DEVICE.

1,272,668. Specification of Letters Patent. Patented July 16, 1918.

Application filed January 13, 1915, Serial No. 1,922. Renewed March 16, 1918. Serial No. 222,983.

To all whom it may concern:

Be it known that I, BERTHOLD JAHN, a citizen of the United States, and a resident of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Dispensing Devices, of which the following is a specification.

This invention relates to dispensing devices and particularly to devices of the class specified adapted for dispensing stacked or nested articles.

The object of my improvements is to provide a dispensing device simple in construction, reliable in operation and economical to manufacture.

With these ends in view my improved device comprises features illustrated in the accompanying drawings and which drawings show the device as particularly adapted for dispensing flanged paper cups from a nested stack. Said drawings show the preferred embodiment of my improvements as directed to this result. Therein Figure 1 is a plan view of my improved device with that portion of the casing above line 1—1 of Fig. 2 removed and with the cups omitted. Fig. 2 is a sectional elevation corresponding with Fig. 1, the section being taken on line 2—2 of said Fig. 1. Fig. 3 is a plan view of a portion of what is shown in Fig. 1 and illustrating the mid-position of one of the escapements. Fig. 4 is an elevation of what is shown in Fig. 3 and looking in the direction of arrow A of said Fig. 3. Fig. 5 is a plan view similar to that of Fig. 3 but showing the escapement at the completion of its stroke. Fig. 6 is an elevation of what is shown in Fig. 5 and looking in the direction of arrow B of said Fig. 5. Fig. 7 is another elevation of what is shown in Fig. 5 and looking in the direction of arrow C of said Fig. 5. Fig. 8 is a plan view of a portion of what is shown in Fig. 1 but with the escapement removed. All the figures of the drawing are to the same scale.

The essential feature of my improvements comprises an oscillatable escapement, indicated in a general way by 2, Fig. 1, having three blades, 3, 4 and 5. Blades 3 and 5 are fixed relatively to each other, in parallel planes and remote from each other. Blade 4 in its inoperative position lies closely contiguous and parallel to blade 3, and in its operation moves away from said blade 3, toward or beyond the plane of blade 5.

The material of blade 3 is extended around in U shaped formation, thus forming a vertical wall 6 and a lower horizontal member 7. Blade 5, by a downwardly and outwardly reaching extension thereof, is rigidly connected to said horizontal member 7. Movable blade 4, by means of a vertical extension thereof, is pivotally supported at 8 to said vertical wall 6 of blade 3. A further rearwardly extending portion of blade 4 carries a cam engaging foot 9. Escapement unit 2 as a whole, is oscillatably supported on fixed pivot post 10, upstanding from fixed horizontal plate member 11 of casing 12. Said post projects through holes in the rearward portions of blade 3 and extension 7 thereof, thus forming bearings by means of which escapement unit 2 may oscillate freely about said post 10.

Lower member 7 of escapement 2 rests against oscillatable plate 13, said member 7 being provided with a downwardly reaching pin 14 projecting through radial slot 15 in said plate 13, so that when plate 13 is oscillated, escapement 2 will also be caused to oscillate. Said plate 13 has cam portions as 16 upstanding thereon for engagement with feet as 9 of the rearwardly extending portions of blades 4. Thus when escapement 2 is oscillated by the movement of plate 13, blade 4 will be caused to move away from blade 3, said blade 4 being returned to its normal position contiguous to blade 3 by the action of tension spring 17.

Movable plate 13 is shown slightly separated from fixed plate 11 by means of washers about posts 10, said plate 13 being provided with concentric slots as 18 to allow for movement about said posts. Plate 13 is also provided with handle 19 extending outwardly through casing 12 for operating my improved device. Movable plate 13 and the escapements as 2 are restrained to their normal positions of Fig. 1 by means of tension spring 20, the posts 10 acting as stops against the ends of the concentric slots 18.

Casing 12 has a coverlike member 21

thereon, and formed integrally therewith is a tube portion 22 for guiding a stack of nested cups, said tube portion 22 extending downwardly through movable plate 13 and fitting closely into fixed plate 11. Holes as 23 are provided in the wall of said tube portion 22, through which escapements as 2 may operate. A glass container tube 24 is provided to contain the stack of nested cups, said tube 24 fitting over the upper end of tube portion 22 and resting against the top of cover member 21. Cover member 21 is contiguous to the upper ends of posts 10, thus keeping escapements 2 located thereon respectively.

My improved device is so constructed that, when the parts are in their normal positions previous to operation, the lowermost cup of the stack will be inclosed by the down-reaching tubular end of casing 12. Inside of said tubular end and closely adjacent to the bottom thereof are provided spring members or fingers as 25, preferably four in number, for arresting the lowermost cup when discharged, the diametral space within the curved tips of said springs being less than the diameter of the flange of the cup. Thus, before operation, the lowermost cup is shielded from exposure and, on being discharged, is prevented from falling away from the device, the cup being retained by said spring fingers with its lower end projecting beyond the casing in position for ready removal by the hand of the operator.

The operation of the illustrated form of my improved device is as follows: A stack of nested cups being supported by the flange of the lowermost cup thereof resting upon blades 5 of escapements 2, in the positions shown in Figs. 1 and 2, handle 19 is pulled in clockwise direction, causing radial slots 15 of plate 13 to operate upon downwardly reaching pins 14 of escapements 2 and rotating said escapements in anti-clockwise direction. Blades 3 and 4, in their contiguous relations respectively, are thus caused to enter between the flange of the lowermost cup of the stack and the flange of the cup next above the lowermost cup, the stack still being supported by blades 5. Escapements 2 continuing in their anti-clockwise direction, blades 5 pass out from under the flange of the lowermost cup, the stack then being supported by blades 3 projecting under the flange of the cup next above the lowermost cup. At this time foot 9 of blade 4 of each escapement has come into engagement with its respective cam portion 16 of plate 13, and blades 3 and 4 have become slightly separated, all as shown in Figs. 3 and 4. Escapements 2 still continuing their anti-clockwise movement, said foot 9 of blade 4 continues to mount the incline of cam portion 16, until handle 19 has come to the end of its stroke by bringing the ends of slots 18 against posts 10, at which time blades 3 and 4 of the respective escapements have reached their widest point of separation and the lowermost cup has thus been completely separated from the stack, all as shown in Figs. 5, 6 and 7. Handle 19 then being released, plate 13 and escapements 2 are returned by spring 20 to their normal positions of Fig. 1, the stack of nested cups dropping from the support of blades 3 to that of blades 5.

The discharged cup then falls until it is arrested and held in suspension by spring fingers 25, said fingers yielding as the cup is withdrawn by hand. The mechanism is then ready to repeat the operation.

The form of the mechanism herein shown and described is illustrative of my invention and changes may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. An escapement comprising three blades oscillatably mounted and in fixed relation to one another in the direction of their oscillation, one of said blades being movable away from another of said blades in a direction transverse the direction of said oscillation.

2. An escapement for a cup dispensing device comprising three blades oscillatably mounted and in fixed relation to one another in the direction of their oscillation, one of which blades is located and operable in one plane and the other two blades forming a pair and arranged face to face and operable in planes parallel to said first plane, and means for moving one blade of said pair away from the other blade thereof in a direction normal to the operative plane of said first mentioned blade.

3. An escapement for a device for dispensing flanged nested cups comprising three blades oscillatably mounted and in fixed relation to one another in the direction of their oscillation, one of which blades is located and operable in one plane and the other two of which form a pair and are arranged face to face and operable in planes parallel to said first plane, the united thickness of said pair of blades being less than the normal distance between the flanges of two adjacent cups to be dispensed, and means for moving one blade of said pair away from the other blade thereof in a direction normal to the operative plane of said first mentioned blade.

4. In a cup dispensing device the combination of means for guiding a stack of nested flanged cups in the direction of their common axis, means for separating the lowermost cup from the stack comprising a pair of vertically contiguous blades, means for

oscillating said pair of blades in planes normal to the axis of said stack of cups into and out of supporting relation to that cup next above the lowermost cup of the stack, means for moving one blade of said pair of blades away from the other blade thereof in a direction parallel to the common axis of said cups, and means for supporting the lowermost cup when said pair of blades is out of supporting relation to that cup next above said lowermost cup.

5. In a cup dispensing device the combination of means for guiding a stack of nested flanged cups in the direction of their common axis, means for separating the lowermost cup from the stack comprising a plurality of pairs of blades the two members of each pair of which have contacting faces in a common plane normal to the axis of said stack of cups, means for oscillating said pairs of blades in planes parallel to the plane of their contacting faces into and out of supporting relation to that cup next above the lowermost cup of the stack, means for moving one blade of each pair of blades away from the other blade of its respective pair in a direction normal to the plane of their contacting faces, and means for supporting the lowermost cup when said pairs of blades are out of supporting relation to that cup next above said lowermost cup.

6. In a cup dispensing device the combination of means for guiding a stack of nested flanged cups in the direction of their common axis, a plurality of oscillatable escapements having their axes without the path of travel of said cups, each of said escapements comprising three peripheral blades, one of said blades being located and operable in one plane and the other two of said blades being arranged face to face and operable in planes parallel with and above the plane of the first mentioned blade, means for rotating said escapements to cause said first blade and said pair of blades to move out of and into supporting relation to adjacent cups in said stack respectively, and means for moving one of the blades of each pair away from the other blade of its respective pair in a direction parallel to the common axis of said cups.

7. In a cup dispensing device the combination of means for guiding a stack of nested flanged cups in the direction of their common axis, means for separating the lowermost cup from the stack comprising a pair of vertically contiguous blades, means for oscillating said pair of blades in planes normal to the axis of said stack of cups into and out of supporting relation to that cup next above the lowermost cup of the stack, means for moving one blade of said pair of blades away from the other blade thereof in a direction parallel to the common axis of said cups, means for supporting the lowermost cup when said pair of blades is out of supporting relation to that cup next above said lowermost cup, and yieldable means for retaining said separated cup in a position whereby its lower end is accessible for removal.

8. In a cup dispensing device the combination of means for guiding a stack of nested flanged cups in the direction of their common axis, means for separating the lowermost cup from the stack comprising a plurality of pairs of blades, the two members of each pair of which have contacting faces in a common plane normal to the axis of said stack of cups, means for oscillating said pairs of blades in planes parallel to the plane of their contacting faces into and out of supporting relation to that cup next above the lowermost cup of the stack, means for moving one blade of each pair of blades away from the other blade of its respective pair in a direction normal to the plane of their contacting faces, means for supporting the lowermost cup when said pairs of blades are out of supporting relation to that cup next above said lowermost cup, and yieldable means for retaining said separated cup in a position whereby its lower end is accessible for removal.

9. In a cup dispensing device the combination of means for guiding a stack of nested flanged cups in the direction of their common axis, a plurality of oscillatable escapements having their axes without the path of travel of said cups, each of said escapements comprising three peripheral blades, one of said blades being located and operable in one plane and the other two of said blades being arranged face to face and operable in planes parallel with and above the plane of the first mentioned blade, means for oscillating said escapements to cause said first blade and said pair of blades to move out of and into supporting relation to adjacent cups in said stack respectively, means for moving one of the blades of each pair away from the other blade of its respective pair in a direction parallel to the common axis of said cups, and yieldable means for retaining a cup separated from said stack in a position whereby its lower end is accessible for removal.

10. In a cup dispensing device, the combination with supporting means for engaging the under side of the lowermost flange of a nested stack of flanged cups, of supporting means for engaging the under side of the flange of the next to the lowermost cup in such stack, a disengaging device located in position to engage the upper side of the flange of the said lowermost cup and move the same downwardly, and actuating means for sequentially moving the upper en-

gaging means into engaging position, moving the lower engaging means out of engaging position, and moving the disengaging device downwardly, said upper engaging means, said lower engaging means and said disengaging device being oscillatably mounted and in fixed relation to one another in the direction of their oscillation.

Signed at New Britain, in the county of Hartford and State of Connecticut, this 9th day of January, 1915, before two subscribing witnesses.

BERTHOLD JAHN.

Witnesses:
HERBERT F. JAHN,
OTTO VATER.